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Media Bias

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Media Bias

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Abstract

There are two different types of media bias. One bias, which we refer to as ideology, reflects a news outlet's desire to affect reader opinions in a particular direction. The second bias, which we refer to as spin, reflects the outlet's attempt to simply create a memorable story. We examine competition among media outlets in the presence of these biases. Whereas competition can eliminate the effect of ideological bias, it actually exaggerates the incentive to spin stories.

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1 Introduction

The descriptive accounts of the media industry (Mencken 1975, Goldberg 2002), as well as journalism textbooks (Jamieson and Campbell 2002) recognize that media outlets do not just report plain facts. One commonly noted bias in reporting is ideological. During President Clinton's impeachment trial, the right-leaning media supported impeachment, arguing that even a small lie in a civil deposition constitutes a major crime. The left-leaning media, in contrast, saw the trial as a witch-hunt, treating the very same violations condemned by the conservative press as trivial. Another, perhaps less commonly noted, bias is not ideological at all, but rather results from the need to tell a memorable story. Thus both the conservative and the liberal media condemned Wen Ho Lee as a Chinese spy, without entertaining the possibility that he was scape-goated by dishonest officials. The media were surely biased, and probably wrong.

In this paper, we draw a sharp analytical distinction between these two kinds of biased reporting. We call the traditional left or right bias ideology, and the less traditional bias - one based on the need to tell a story – spin. We see ideology as coming directly from the preferences of either editors or reporters. For example, left wing newspapers may simply prefer to report news one way. We see spin, on the other hand, as coming from a newspaper's attempt to tell a simple and memorable story. The act of simplication leads to bias since some information is necessarily discarded. We examine the consequences of both ideology and spin for the accuracy of news reporting. Our principal interest is how competition affects accuracy. We show that, even with competition, the truth may not always come out, especially when spin is important.

We consider the case of private media outlets maximizing the welfare of their owners, which depends on ideology and profits. We begin with the case of a monopoly news supplier. We establish that, with Bayesian readers, only the ideology of the media outlet is a source of bias in reporting. But we also consider the case of readers who are categorical thinkers - have limited memory, and can only remember the "bottom line." This psychological assumption allows us to analyze the commonly noted need

by media outlets to tell a memorable story, the so-called "narrative imperative". With categorical readers, it pays the monopolist news supplier to spin the news in order to make them memorable even in the absence of any ideology. This spin - the need to tell the story - is also a source of reporting bias.

The more interesting issues arise when we consider competition among media outlets. Such competition is an important argument for free press: despite the ideological biases of individual news suppliers, the truth comes out through competition. We show that, with Bayesian readers, this is indeed the case: competition undoes the biases from ideology. With readers who are categorical thinkers, however, the consequences of competition are more complex. We show that, in the absence of ideology, competition actually reinforces the adverse effects of spin on accuracy. Not only do the media outlets bias news reporting, but the stories reinforce each other. As each paper spins stories, it increases the incentives of later outlets to spin. This piling on of stories means non-ideological competition worsens the bias of spin. Moreover, spin can exacerbate the influence of one-sided ideology. When the first news outlet that uncovers the story is ideological and later ones are not, the first one sets the tone and later ones reinforce this spin. This can explain why and how inside sources leak information to news outlets: their principal motivation is to control how the story is eventually spun.

Our theory of news reporting falls between two extremes. The traditional view is that readers demand, and media outlets supply, pure information about political and economic markets, and thereby facilitate better consumer and voter choice (Coase 1974, Besley and Burgess 2001, Besley and Prat 2002, Djankov et al. 2002, Stromberg 2001, Dyck and Zingales 2002).[1] The opposite but also plausible view, pursued by Mencken (1920) and Jensen (1976), sees the media as entertainment, with no obvious grounding in reality. The perspective of this paper is that media outlets provide neither unadulterated information, nor pure entertainment. News outlets may be biased for ideological reasons. And consumers, while not desiring pure entertainment as might be the case with sensational or human interest stories, do indirectly affect news content

[1]Dyck and Zignales (2002) go further and examine how private incentives might bias corporate news reporting.

because of how they process information. So for reasons of ideology news outlets may bias information to please their owners, and for reasons of consumer psychology they may bias the information to please their readers.

These results have significant implications for media accuracy. They explain, in particular, how the media in the aggregate are likely to get to the bottom of a news story with significant ideological dimension. Ideological diversity serves as a safeguard against spin. Our results are consistent with Richard Posner's (1999) highly favorable assessment of the press in the coverage of the Clinton affair. Our results also show why media bias is most severe in the cases where no or little ideological diversity bears on the story, such as the investigation of Wen Ho Lee. In this case, the bias comes from spin, and spin causes the followers to pile on. Competition among media outlets is not a solution to the problem of spin - indeed, it makes the problem worse. Our paper makes the case for extreme ideological diversity in the media - in such diversity lies the best hope against spin.[2]

2 Model Setup

There are two players: the newspaper and the reader.[3] The newspaper is either good or bad. A good newspaper has access to some information that the reader wants. A bad newspaper, on the other hand, has no useful information.[4] The reader uses the newspaper to improve his estimate of some value t. We begin by assuming that t is a single real number. This value could be many things: for example, the quality of a politician or the financial health of a firm. The common prior is $t \sim N(0, \sigma^2)$, i.e. t is normally distributed with variance σ^2.

There are three periods. In the first period, the reader receives a signal r about the truth. This signal reflects the reader's prejudice about the topic before he reads

[2]At a more general level, this paper is part of a broader literature on the interaction between competition and individual psychology, e.g. Russell and Thaler (1985), De Long et. al. (1990) and Camerer (1998).

[3]For simplicity, we use this terminology of "newspaper" and "reader" but nothing we discuss is specific to this medium. Our analysis applies to news outlets generally speaking.

[4]A bad newspaper cannot manufacture stories to appear good. We use these two types merely as a way to model the incentives of the good newspaper to create memorable stories. If no stories are remembered the newspaper is perceived to be bad and loses subscribers.

the newspaper. This prejudice could be shaped by basic beliefs about how the world operates. For example, in the Wen Ho Lee case readers may have started with the presumption that the Chinese are likely to be spying on the U:S. Alternatively, this signal may itself be the result of other newspaper stories or rumors the person has heard.[5] In short, r is summary of the reader's prior convictions and prejudices before he reads the newspaper. The signal r is a noisy estimate of the truth, so

$$r = t + e_r$$

where e_r is distributed normally $N(0, \sigma_r^2)$. The reader uses this signal to update his beliefs.

The newspaper may also receive a signal. Good newspapers receive a signal for sure and bad newspapers receive no signal. The signal they receive is denoted n and equals the truth plus some noise: $n = t + e_n$, where e_n is normally distributed with variance σ_n^2. Though we make n uni-dimensional for simplicity, one can think of n as really a bundle of facts.

In the second period, the newspaper decides what to report. A bad newspaper has no news to report. A good newspaper, in contrast, has news n which it may modify before reporting. Let s denote this modification, so the paper reports $\nu = n + s$. We are thinking of a newspaper receiving a lot of facts about a particular issue, all potentially pointing in somewhat different directions, and needing to distill them into a memorable story. We think of the modification s not as invention or fabrication of new facts, but rather as a way to emphasize some facts, and de-emphasize others, so the readers extract from the story a synthesized bottom line.

Manipulation of information can take a variety of forms. In some countries, newspapers just make up facts to corroborate their stories, but we do not believe that this phenomenon is important in the U.S. Rather, we are modeling the situation where a newspaper biases stories in more subtle ways. Reports can ignore or omit information inconsistent with the message of the story, "build up" information sources that corroborate the story, ignore or undermine information sources that contradict the message,

[5] We formally study this second case when we consider multiple newspapers.

or use colorful but misleading language and images that support the story. These types of information manipulation need not involve inaccuracies, but at the same time address "the narrative imperative".

Modification is costly to the newspaper. First, it requires costly story-telling and research necessary to bolster the theme of the report. Second, and far more importantly, both the newspapers and the reporters that work for them care about accuracy, and excessive modification of the news raises the risk of being wrong. Let $c(n-\nu)$ denote the cost of modifying the news We assume that $c(0) = 0$ and that $sign(c'(x)) = sign(x) > 0$ and $c''(x) = 0$, $\lim_{x\to\infty} c(x) = \infty$ and $\lim_{x\to 0} c(x) = 0$. These assumptions mean that manipulation, in either direction, is costly to the newspaper.

In the third period, the reader reads the story. He then combines what he reads with his priors to form an assessment of t. Define this belief to be $\hat{t}$. After beliefs are formed, the reader may forget the story or not. If he remembers the story, he presumes the newspaper is good. If he does not he presumes the paper is bad.

2.1 Reader Psychology

The model turns on how we assume readers form beliefs and remember information. At one extreme, we might suppose people form Bayesian beliefs and have perfect recall. In this case, after reading the news ν, the individual updates and forms beliefs:

$$\hat{t} = r + k_1(\nu - r)$$

where k_1 is a constant that equals $\frac{\sigma_n^2}{\sigma_r^2+\sigma_n^2}$.

But this Bayesian framework does not allow us to think about the media's desire to tell a story. To understand reader's demand for "stories", we consider a model where readers think in coarse categories rather that in precise fine-tuned priors (Mullainathan 2002). Coarse categories capture the idea that readers carry away general impressions of the situation rather than tracking all the details. In our simple case of a one-dimensional signal, the coarse categories may be something like "good" and "bad". Clinton is either a persecuted modern man or a villain. Wen Ho Lee is a spy or a victim. In more complicated situations with more dimensions, the categories would be

more nuanced. But the "good" and "bad" in our simple one-dimensional case captures the important feature of categorization: readers have coarse rather than fine-tuned beliefs. Specifically, define t_+ and t_- to be the positive and negative categories and assume these are symmetric in that $t_+ = -t_-$.[6] Denote the categorical thinker's beliefs to be $\hat{t}_c$. We assume that he believes in the category closest to what the Bayesian would believe. In this context, that means that he believes t_+ when the Bayesian would have believed a positive t and he chooses t_- if the Bayesian would have expected a negative t. Formally:

$$\hat{t}_c = \begin{cases} t_+ & \text{if } \hat{t} > 0 \\ t_- & \text{if } \hat{t} <= 0 \end{cases} \tag{1}$$

For example, suppose the reader has several pieces of evidence most of which suggest Wen Ho Lee is a spy but some of which suggest the government scape-goated him. A categorical thinker walks away having placed Wen Ho Lee in the spy category, essentially collapsing his information into this simply summary.[7]

A key feature of story telling is that stories need to be memorable. To capture this idea, we assume that readers forget some of the stories they read. Specifically, we assume that the reader selectively forgets information that is inconsistent with his category.[8] This selective recall is an extension of the reader holding coarse beliefs. He recalls data that justify these coarse beliefs. In the above example, once the categorical thinker places Wen Ho Lee in the spy category, he is less likely to remember stories which suggest that the government scape-goated him.[9] Formally, we assume that recall probabilities are a function of consistency with the reader's category *after* he reads the story. So a story is more likely to be remembered if $sign(\nu) = sign(\hat{t}_c)$. Specifically, inconsistent stories have probability f of being remembered and consistent stories have

[6] Allowing more categories does not change the results.

[7] It is worth noting that not every category or story-line is equally likely. The background for any particular news item determines which stories fit. The purpose of our model is not to elucidate exactly how any one story is spun, but to understand how the narrative imperative interacts with competition.

[8] Several psychology experiments suggest that category consistent information is more likely to be remembered than category inconsistent information. This is discussed in greater detail in Mullainathan (2002).

[9] One might wonder whether extreme incosistent stories would also be remembered. In this set-up, they would be if they are big enough to change the reader's category. In this case, they become consistent with the new category. If they are inconsistent but not enough to change the reader's mind, then they are discarded since they don't fit the simplified, summary world-view of the reader.

probability 1 of being remembered. Denote this probability of recall as $\rho(\nu, \hat{t}_c)$.

In this paper, we examine what these two different assumptions about reader psychology imply for media bias. We consider both Bayesian and categorical readers not because we think readers are one or the other type. Instead this split allows us to make clear which results are driven by reader psychology and which are driven by the structure of competition itself.

2.2 Newspaper Payoffs

A newspaper's payoff depends on several factors. First, it depends on whether the newspaper is perceived to be good, since presumably good newspapers sell better. The paper receives a payoff π if it is thought to be good and zero otherwise, where π is the capitalized value of the incremental profits from being remembered. Second, the newspaper may have an ideology τ which is either 0, +1 or −1. A newspaper with an ideology of +1 prefers to report positive stories whereas a newspaper with an ideology of −1 prefers to report negative stories. We assume the newspaper recevies an ideological benefit equal to $\beta\tau\nu$. In this sense β measures the intensity of the newspaper's ideology. We further assume that readers form inferences ignoring the newspaper's ideology.[10]

When readers are Bayesian, there is no confusion of good or bad newspapers since all stories are remembered. A good newspaper no matter what it reports has its story remembered and is recognized as good. And by assumption a bad newspaper can never appear good. A good newspaper therefore receives a payoff of:

$$\pi + \beta\tau\nu - c(n - \nu)$$

and a bad newspaper receives a payoff of:

$$\beta\tau\nu - c(n - \nu)$$

When readers are categorical, however, good newspapers can be confused with bad ones. If a good newspaper's story is forgotten, it is thought of as a bad one.

[10]This assumption is merely to simplify the calculations. At the opposite extreme, readers would know and recognize these ideologies and would de-bias stories before incorporating them into beliefs. Media biases would have no effect on beliefs at all. Our assumption is a simple version of the more realistic case where readers partly but not fully recognize the bias.

Readers presume that, since they remember no story, the paper must have been bad and reported nothing.[11] A good newspaper's expected payoff therefore depends on the probability of recall in this case:

$$\pi * \rho(\nu, \hat{t}_c) + \beta\tau\nu - c(n - \nu) \tag{2}$$

A bad newspaper is never confused for a good one. Even when its stories are remembered they are seen as worthless. Consequently its payoff is as before:

$$\beta\tau\nu - c(n - \nu)$$

With these payoffs, it is clear why categorical thinking provides a non-ideological reason for newspapers to manipulate stories. Newspapers want their stories to be memorable because the reader who does not remember any story presumes the newspaper to be bad.[12] To be memorable, a newspaper then has an incentive to alter its story so that it better fits the readers' category.[13] In the Wen Ho Lee case, unless the newspaper can change the reader's mind, it has an incentive to report a story consistent with the reader's categorization of Wen Ho Lee as a spy.

It is worth noting that this specific model is only one way to operationalize the element of reader psychology we stress. What is critical to us is that the reader values stories which match his beliefs except when these stories are so large as to change beliefs. In our model this preference arises indirectly because of the differential memorability of stories, but there are other ways to model it. An alternative is that readers suffer from confirmatory bias: they dismiss stories that are inconsistent with what they believe (Lord, Ross and Lepper 1979). In fact, our model could be reinterpreted in

[11] Thus a newspaper's quality (i.e. whether it is good) is assessed solely through recall. We could have allowed quality to be also assessed by how close the newspaper was to the eventual truth, but chose not to for simplicity. All this does is to create an added force for the newspaper to reveal its signal with no manipulation. But in the current model, the cost of manipulating the signal serves the same purpose. It is worth noting that even if the newspaper is judged only on distance from the final truth, it still has a motive to make stories memorable since it receives no credit for being correct if nobody remembers what it reported.

[12] One could get similar results by making the less drastic assumption that readers "rationally" infer that the paper might have been good and they simply forgot the story. Even in this case a forgotten story increases the readers' perceived likelihood that the paper is bad and as such hurts its payoff.

[13] This could happen through several mechanisms. First, editors may use their control to directly spin stories. Second, reporters may respond to editorial or owner preferences by trying to write memorable stories to raise their profile within the paper.

this light. Suppose that readers find it easy to dismiss moderately inconsistent news but not grossly inconsistent news. In this case, we can reinterpret the recall function as a dismissal function. When the reader dismisses news as fallacious, he presumes the paper is bad, which is isomorphic to presuming that a newspaper whose story has been forgotten is bad. Similarly, the fact that very big stories cannot be dismissed is equivalent to the fact that categorical thinkers change their mind to big enough news and hence remember the story.[14] This re-interpretation produces the same results as ours. Once again newspapers with mildly inconsistent news bias stories so as not to be dismissed. But for big news, they do not fear dismissal and report the news accurately.

We chose the model with recall and categorization for two reasons. First, it better matches descriptive accounts of the media, which suggest that newspapers are interested in writing a compelling story. The commonly used phrase "narrative imperative" captures exactly the pressure newspapers feel to distill complicated situations into a simple message. They cater to reader's prior prejudices because this is one easy way to make stories memorable. Second, our specification provides a better framework for thinking about what kinds of spin occur. Newspapers attempt to spin stories so that they better fit a particular category. Nevertheless, aside from interpretation, the results we provide below are the same with the alternative model as well.

3 Results

3.1 Two Types of Bias

We begin with the case where the reader is Bayesian and there is only one newspaper. Here, the newspaper has only one reason to bias the news: if it has an ideology it wants to pursue. If it has no ideology, it gains nothing from manipulating the news. The first proposition formalizes this idea.[15]

[14]Specifically one would replace the recall function in equation 2 with a dismissal function that is non-linear. The proability of dismissal would be increasing as the news is further from priors until it gets large enough at which point the probability of dismissal would diminish.

[15]All proofs are in the appendix.

Proposition 1 *If the newspaper has no ideology ($\tau = 0$), then it does not manipulate news: $\nu = n$. If it has an ideology, then it wants to manipulate news in the direction of its ideology so that $sign(\nu - n) = sign(\tau)$. The magnitude of manipulation is increasing in the strength of the ideology (β) and decreasing in the size of the news ($|n|$) and in the cost of manipulation ($c(\cdot)$).*

This proposition suggests one source of bias: the political ideology of the newspaper. But when agents are categorical thinkers, another bias may arise. Newspapers may manipulate news not because of their political ideology but because they cater to readers' interests. The paper wants to have its story remembered and, therefore, may manipulate news stories to make them more memorable. The following proposition formalizes this notion of *spin*.

Proposition 2 *When the reader is a categorical thinker, the newspaper biases the news even when it has no ideology ($\tau = 0$). If it biases news, it does so in one of two ways. First, if the news is small enough and inconsistent with priors, it biases the story towards priors. Second, if the news is large enough and inconsistent with priors, it biases the story away from priors in an attempt to change the reader's category.*

A simple example illustrates this proposition. Suppose the reader believes 2 and the newspaper receives a signal -1. Suppose the newspaper reports the truth in this case. Since -1 is not enough to switch beliefs, the categorical reader continues to believe t_+.[16] But since the story that the newspaper reported is negative, it contradicts the final category and therefore has a good chance of being forgotten. The newspaper therefore has an incentive to alter the story to make it positive and thereby more likely to be remembered. In other words, if the news is not enough to change the reader's mind, the paper has an incentive to spin it to match the reader's prior convictions.

But if the signal is large enough, the newspaper may want to go against beliefs. In the above example, if the newspaper sees a signal of -3, it knows that by reporting the truth it can change the reader's mind. Once the reader's mind is changed, the

[16] And assume for now that the relative variances of noise and signal are equal so that $k_1 = \frac{1}{2}$.

news story and category match and therefore the story is remembered. In this case the newspaper no longer has the incentive to spin the story to increase memorability.

These two propositions emphasize that underlying the notion of media bias there are really two distinct phenomena. One is driven by the political ideology of the newspaper and arises from an attempt to convince the public of a particular viewpoint. The other bias is driven by an attempt to appeal to the reader in our case by creating a memorable story. This kind of "spin" is merely an attempt by the newspaper to cater to the reader's psychological make-up.

3.2 Competition

In this section, we consider whether competition delivers accuracy in media. Specifically, we ask whether the reader who wants to get to the bottom of a story by reading and listening to all the media outlets covering it in the end obtains unbiased information. An economist might reason that competition between media outlets should eliminate media bias and lead to such revelation of the truth.

To investigate this issue, we consider the case where multiple newspapers instead of just one report the news. Suppose there are N of them. Each newspaper releases news in a sequential manner with newspaper indexed 1 releasing first, followed by the one indexed 2 and so on. Each newspaper receives an independent signal about the truth and reports on this signal. Moreover, for simplicity, assume all newspapers are identical in that they have the same cost functions and receive signals of the same precision; at most they differ in their ideologies.

The reader reads all the newspapers and aggregates the stories sequentially. He forms a category after each news story by combining what he reads with the stories he remembers and his priors. After the new category is formed, the reader remembers the news story if it is consistent with his new category and does not if it is inconsistent. If the story is remembered (or forgotten) it is remembered (or forgotten) permanently.

The assumption that the reader reads all stories is intended to describe a reader who is exposed to multiple media outlets either because he generally uses multiple sources or because he searches them out to understand a particular story. Assuming

exposure to multiple sources is a necessary feature of any model of competition because that is the source of competition. If readers are in contrast isolated and read only one source, we would simply apply the results of the previous section and assume it is a case of local monopoly. In what follows, when we speak of the number of newspapers, we mean the number that the reader is actually exposed to.[17]

Finally, we assume that newspaper payoffs are independent. That is, a newspaper receives the same payoff π for being perceived as good independent of the number of other newspapers. The effects of competition we discuss arise purely from information aggregation rather than market structure.

Suppose that agents are Bayesian. If newspapers have different enough ideologies, the average news story is an unbiased estimate of the truth. Each newspaper may bias news towards its ideology but these differences wash out in the aggregate.

Proposition 3 *Suppose agents are Bayesian and the number of newspapers having a positive ideology is the same as the number of newspapers having a negative ideology. Then in aggregate there is no bias in beliefs. That is, the reader's beliefs after reading all the newspaper stories (ν) are the same as if he could see the true news (n) himself.*

If there are enough left-wing and enough right-wing papers, the truth about Clinton emerges. Each side may exaggerate the story in its preferred direction, but these exaggerations cancel out.

While competition eliminates the bias caused by ideology, it does little to reduce spin, the bias caused by categorization. To understand why this is the case, note that each newspaper reporting a story still feels the need to go along with the reader's priors. But now that effect is reinforced because each newspaper knows that future newspapers will also cater to the reader's beliefs at the time. Since each of the prior newspapers has biased the news, the reader is now stronger in his beliefs. Each newspaper, therefore, feels an even greater pressure to bias toward priors.

[17]This caveat must be kept in mind when interpreting our results on ideological competition. In our model, ideological competition refers to competition within the set of news-papers a reader reads. If every reader is segmented to a particular ideological paper, then ideological diversity would of course create an adverse effect on accuracy which is not in this model. But remember that we are interested in the case of a motivated reader who is trying to get to the truth by consulting many sources.

Proposition 4 *Suppose agents are categorical and newspapers have no ideology. Then there always exists a constant k such that if each newspaper receives news n_i smaller than k, newspapers continue to bias news towards priors. In this case, agents continue to believe in false facts even with an arbitrarily large numbers of news-stories. Moreover, a newspaper has greater incentives to spin the story with competition than without.*

This Proposition applies to stories where newspapers have no ideology. For example, newspapers may have had little ideological interest in characterizing Wen Ho Lee as a spy. In this case we would interpret what happened as a piling on by the newspapers. If readers began with a moderate prior that the Chinese are spying on the U.S., then the first newspaper has an incentive to spin the story in this direction. This reinforces the prior and increases the incentive of the next newspaper to spin its story in the same direction, further reinforcing the belief. Each newspaper piles on to this particular spin, making it more likely that successive newspapers follow suit.[18] Unless a newspaper receives some extremely compelling evidence that Wen Ho Lee is not a spy, the piling on results in a very biased outcome.[19]

The proposition also applies to some cases where newspapers have an ideology if the reporters themselves do not have one and the editors exercise little control. Most notably, on smaller political issues, even if newspaper editors have particular ideologies, editors will not find it worthwhile to control exactly how each story is written.

To summarize, competition does not necessarily remove media bias. If the bias is due to the ideology of newspapers, then increasing the diversity of opinions helps get the truth out. But if the bias is spin, then competition only exaggerates it and keeps

[18]The assumption that a story's recall is determined by the category after it is read is important for this result. If recall were determined solely by the final category (after reading all the news), then newspapers would not want to cater to priors. Instead they would want to cater to their best guess of the posteriors that will eventually materialize.

[19]These results are analogous to the literature on herding (Banerjee 1992, Bikchandani, Hirshleifer and Welch 1992 and Scharfstein and Stein 1990). An alternative way to generate simple herding by newspapers is to specify that reporters simply rehash what others have said to save the cost of having to go out and generate new information. While this might be happening, this kind of herding is qualitatively different from that in our model. In our model, newspapers are not simply repeating what others have said, they are in fact exaggerating the new news to fit the story. Thus in contrast to simple herding explanations, there is new "news" produced each period; sometimes it is just reported in a way that is biased towards priors.

aggregate information away from the truth.

3.3 Interaction between Spin and Ideology

In a competitive environment, spin and ideology interact in interesting ways. First, when agents are categorical, the bias from ideology can be *exaggerated* by spin. Consider the case where the first newspaper reporting the story has an ideology and other newspapers do not. The first newspaper knows that, by manipulating its story, not only is it affecting beliefs today, it is also affecting future reporting. The following proposition formalizes this idea.

Proposition 5 *Suppose that there are two newspapers, one of which has an ideology and the other of which does not. If agents are categorical thinkers and each newspaper receives only a small bit of news, then the aggregate bias is more in the direction of the ideological newspaper if it reports first.*

This result emphasizes the case where a single ideological newspaper can bias stories in a particular way and exploit later newspapers' desire to be consistent with priors. Proposition 5 has one important implication, namely the opportunity for politicians themselves to control spin. If a politician can get out his story to a friendly newspaper first, and thereby create a particular image of himself or his proposals, future newspapers will be influenced by the priors created by this first story. As a consequence, the image will stick, competition notwithstanding.

To formalize this intuition, suppose we are in a setup where there are a N newspapers without any ideology. Now suppose there is a third party, called the source, who can leak information to one of these newspapers. The source receives a payoff if the reader believes a positive value. The source knows his signal value as well as the true value of the parameter. For simplicity, suppose that he can choose which newspaper to release the information to. The chosen newspaper receives no other signal that period. In this framework, the following is true.

Proposition 6 *If the signal is too negative, the source never releases it. If the signal is positive, the source releases it to the first newspaper.*

The first part is very intuitive. The source has no incentive to reveal negative information since his payoff depends on the public having a positive perception. The second result clearly follows from Proposition 5. By giving the first newspaper the story, the source maximally benefits from the piling on effect. Later newspapers spin stories consistent with his initial message.

Proposition 5 and 6 focus on cases with no ideological competition, where newspapers passively accept the early spin because they have no ideologies of their own. The following proposition shows that when newspapers' ideologies are very different, the incentive for newspapers to pile on to the early spin falls.

Proposition 7 *Suppose the number of newspapers with a positive ideology equals the number with a negative ideology and that agents are categorical thinkers. As the strength of ideologies (β) increases, newspapers' incentives to spin stories decreases and the total amount of bias in reporting decreases.*

Proposition 7 is perhaps the crucial result of the paper. It shows that newspaper ideology, far from being a problem to be lamented, is in fact crucial for accuracy in media. Without ideological diversity, spin causes newspapers to pile on, and to sacrifice accuracy in order to report memorable stories. When newspapers have different ideologies, however, the competitive pressures to follow the leader are countered by the pressures of ideology. Ideological diversity is an antidote to spin.

4 Case Studies

These results about media bias can be crisply illustrated in two case studies. The first, involving NBA star Allen Iverson, highlights how non-ideological media outlets spin stories to be consistent with pre-existing categories. The second, involving academics Lawrence Summers and Cornel West, illustrates how ideological bias of newspapers can undo the effects of spin. Each of these examples also gives a sense of the exact mechanisms through which newspapers bias stories.

4.1 Allen Iverson

4.1.1 Facts

On July 7, 2002, following the previous day's report in the Philadelphia Daily News, the New York Times reported that 76ers guard Allen Iverson was being investigated by the police for threatening two men at a West Philadelphia apartment complex in the middle of the night of July 3rd. The police said that the complainants did not allege that they were physically assaulted. Iverson is an outstanding basketball player, who had earlier brushes with the law. He is also known for his taste for argument and for skipping practices, as well as well as for a $50 million contract with Reebok for advertising shoes.

On July 10, 2002, the story exploded with the 1st page report in the Philadelphia Inquirer that the police are to push for charges against Iverson. In the next several days, characterizations of what transpired on July 3 became increasingly evocative. According to the reports, Iverson had a fight with his wife Tawanna, and around midnight "kicked her out" of their $2.4 million "mansion", either "naked" or "half-naked." A few hours later, he and his uncle, Gregory Iverson, went to look for Tawanna and a relative, Shaun Bowman, in Bowman's apartment. Neither was there, but Bowman's roommate Charles Jones, and Jones's neighbor Hakim Carey, were in the apartment. According to the news stories, Iverson "stormed into," "forced his way into," "barged into," or "burst into" the apartment, looking for his wife and in the process "threatening two men with a gun" and "making terroristic threats." Several hours after Iverson left, Jones called the police. On July 11, the District Attorney charged Iverson with 4 felonies and 10 lesser offenses, including criminal trespass, conspiracy, assault, and terroristic threats, which could "add up to a maximum of 70 years in prison."

Over the following several days, the media afforded this "alleged armed assault" the extensive and thorough coverage it required. At some point, the New York Times and other outlets reported that police found "broken glass and smeared blood" inside a vehicle frequently driven by Iverson's wife, but it later turned out to be "unidentified substance," probably ketchup. Iverson was resoundingly criticized, with commentators

lamenting that the NBA penalties for felonious players are insufficiently harsh. "Iverson Fouls Out," said the Wall Street Journal Oped.

Then, at a preliminary court hearing on July 29, the judge threw out all criminal charges except two misdemeanor counts of "making terroristic threats" against Iverson. It transpired that Iverson actually paid the rent on the Bowman/Jones apartment, and had the right to enter it. Hakim Carey admitted that he did not see Iverson brandish a gun and that he lied to the police at Jones's request. Jones admitted that he talked to a personal injury lawyer before calling the police 10.5 hours after his encounter with Iverson. Bowman also testified that, following the incident, Jones tried to blackmail Iverson. In dismissing the charges, the municipal court judge described the case as "a relative looking for a relative in the house of a relative." Eventually, the remaining two chargers against Iverson were also dropped.

4.1.2 Analysis

Other than its obvious sensationalism, the Iverson coverage illustrates three points about our model. First, it shows how competition between the newspapers results in piling on, with no evident interest in considering alternative possibilities. The story about Iverson fit the readers' priors about him and all the newspapers were happy to tell it. Because of his dress, demeanor, race and past, Iverson is often described with phrases such as "thug lifestyle" or "gangster image". Kicking his wife out naked and then breaking into an inner-city apartment brandishing a gun is quite consistent with this category. Second, even if one reads the reports chronologically, without knowing the end, it is striking how non-credible Iverson's accusers appear (Mullainathan raised this with Shleifer before the court hearing on July 29). The police - and the press - knew from the very beginning about the 10.5 hour delay in Jones' 911 call. Residents of the very apartment building noted the accusers' shady personalities, identifying one of them as a known con man. Yet none of the national press we saw appears to have considered the identity of the accusers, and their possible interests, presumably because this line of inquiry could not have bolstered the story being told. Finally, the Iverson coverage demonstrates very clearly the "first mover advantage" in reporting. The story

was leaked to the press by the police, which itself did most of the sensationalizing, and was obviously looking for publicity. The press did not make anything up; it only took the story being offered and spun it.

4.2 Summers and West

4.2.1 Facts

On December 22, 2001, Boston Globe reported that, according to Harvard faculty members, the University's President Lawrence Summers "rebuked [Afro-American Studies Professor Cornel] West for leading the political committee for Rev. Al Sharpton's possible presidential campaign, and for writing books more likely to be reviewed in The New York Times than in academic journals. He also reportedly criticized West for allowing grade inflation in his introductory course on black studies." The Globe reported that, after the October meeting between Summers and West in which the conversation took place, several Afro-American studies professors, Harvard's "dream team," were thinking of leaving for Princeton. Summers was described as "a bull in a China shop" who had not emphasized the importance of diversity as clearly as his predecessor.

In the following week, the coverage of the controversy exploded, all of it complimentary to West and critical of Summers. The New York Times ran stories on December 29 and January 4, the Globe on December 31, and January 2, 3, 4, and 5. The stories reported that both Jesse Jackson and Al Sharpton became involved, the latter threatening to sue Harvard as "an aggrieved person." On January 4, the Globe described Summers as Harvard's "embattled new president" and summarized the October events in stark terms: "Summers called West to his office and in a private meeting insulted the 48-year-old professor, raising questions about his scholarship, grade inflation in his classes, his cutting a rap CD, and his support for the presidential campaign of Reverend Al Sharpton, professors close to West said."

Then, on January 5, the Economist wrote a story making fun of West and his CD (sample lyric: "No other people in the modern world have had such unprecedented

levels of regulated violence against them") and suggesting that "Mr. Summers clearly has a point." The Wall Street Journal joined the coverage, with an editorial critical of West on January 7, and a piece on January 8 calling West an academic "lightweight."

The coverage continued into the Spring - sympathetic to West in the Boston Globe and the New York Times, sympathetic to Summers in the Wall Street Journal and the New Republic. On January 20 the Globe described the tension, explaining that West is a pre-eminent black intellectual to his admirers, and a charlatan in a three piece suit to his critics. Finally, in mid-April, West decided to move to Princeton, announcing his decision on National Public Radio, and calling Summers "Ariel Sharon of American higher education". Press reaction to West's departure to Princeton divided along the previous ideological lines, with the Globe lamenting that "the impact of West's departure will hit Harvard hard," and the New Republic blasting him with a sarcastic "Congratulations Princeton. You have your public intellectual."

4.2.2 Analysis

The Summers-West saga, like the Iverson example, illustrates the workings of the narrative imperative, and the pile on suggested by our model. Consistent with our model, none of the articles in the early coverage showed both sides of the story until the Economist and the Wall Street Journal questioned whether the claims made by West and his supporters were true or whether Summers might have had a point. But far more importantly, the ideological divide of the press ultimately assured that both sides were eventually presented to the public: with the Boston Globe and the New York Times presenting the liberal perspective, and the Economist, the Wall Street Journal, and the New Republic the conservative one. It is precisely because of the ideological competition that a reader could if he wished be exposed to both perspectives.

The Iverson example thus illustrates the workings of Proposition 5 - the piling on without an ideological dimension, whereas the Summers - West story illustrates Proposition 7 - the presentation of both sides when ideology is recruited. This analysis, however, raises a deeper issue: why did the Summers-West story become ideological, while the Iverson one did not? One can imagine, for example, the liberal media worrying

that the all out attack on Iverson by the Philadelphia police was racist, and taking his side in the coverage. Likewise, one can imagine the conservative press never entering on the side of Summers, who after all is a former Treasury Secretary in the Democratic administration of Bill Clinton. West was not helped by Jesse Jackson and Al Sharpton entering his dispute with Summers, so the conservative press saw red and the story became ideological. Had it not, the coverage would have remained utterly one-sided.

5 Conclusion

When do careful consumers of competitive media sources come away with an accurate picture of facts? In this paper, we try to answer this question by focusing on two sources of media bias: ideology and spin. We show that, in the absence of spin, competition undoes the biases from ideology. However, in the absence of ideology, competition only promotes the biases from spin.[20]

These results help shed light on the kinds of issues where we expect accuracy in the media, at least in the aggregate. For news that have significant right-left ideological dimensions, such as presidential elections, competitive media are likely to produce accurate reporting, on average. On the other hand, for news that do not have such a dimension, such as cases involving law enforcement or many aspects of foreign policy, spin rather than ideological diversity is likely to shape competitive reporting. For such stories, competition does not eliminate the media bias, and there is no good reason to expect accuracy in media.

[20]This reasoning resembles Becker's (1956) analysis of racial discrimination. He argues that competition eliminates discrimination derived from employer preferences, but not discrimination derived from consumer preferences. In our case, media bias that is driven by producer preferences– the political bias of a media outlet–is eliminated by competition. But media bias driven by consumers–the need to tell a simple story–is reinforced by competition. Of course to interpret our results in a broader supply and demand framework, one would need to understand whether the supply of media outlets' ideology is itself a response to reader demand.

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Appendix

Proof of Proposition 1

Since agents are Bayesian, they remember everything they read. Consequently a good newspaper with no ideology receives a payoff of:

$$\pi - c(\nu - n)$$

Since this is strictly decreasing in $|\nu - n|$, there is no incentive to manipulate. Hence $\nu = n$.

An ideological newspaper receives a payoff:

$$\pi + \beta\tau\nu - c(\nu - n)$$

Suppose that $\tau = +1$. Define s to be $\nu - n$. Differentiating with respect to s gives the first order condition

$$k_1\beta = c'(s)$$

for some constant k_1 (which is a function of the signal to noise ratios). Thus the extent of manipulation (s) is increasing in β. The same logic holds when $\tau = -1$.

Proof of Proposition 2. A good newspaper worries about being remembered. When it has no ideology, its payoff is

$$\pi\rho(\nu, \hat{t}_c) - c(n - \nu))$$

Consider three cases. First, suppose the news is consistent with priors. Then if the newspaper reports truthfully its payoff is π. Since it cannot do better than this, it has no incentive to manipulate.

Second, suppose that the news is inconsistent with priors but that if reported truthfully it would cause a change of categories. Then truthful reporting yields a payoff of π so the newspaper again has no incentive to manipulate.

Third, suppose that the news is inconsistent with priors and that if reported truthfully it would not cause a change of categories. Now the news-paper must decide whether to manipulate. For simplicity, focus on the case where the reader's priors are positive and the news story is negative. The newspaper has three choices: do not manipulate, make the story positive or make it so negative that the reader changes categories.[21] No manipulation means that the paper's payoff is $\pi * f$. Making the story positive means bearing the cost $c(n)$ and results in a payoff of $\pi - c(n)$. Suppose that x is the size of news story the reader needs to change categories. Then making the story very negative means getting a payoff of $\pi - c(x - n)$.

Putting all this together, the news-paper biases news if

$$\pi f < \pi - c(|n|, |x - n|)$$

or when $c(min(|n|, |x - n|)) < (1 - f)\pi$. And if it chooses to bias the news it biaes positively if $n > \frac{x}{2}$ and negatively otherwise.

The same logic applies when priors are negative, proving the result.

Proof of Proposition 3. Any newspaper receives a payoff of $\pi - c(\nu - n) + \beta * \tau * \nu$, which is independent of other newspaper's actions. If s is the bias $\nu - n$, then differentiating with respect to s shows that there is an optimal bias of $s_+ > 0$ for positive ideology newspapers and $s_- < 0$ for negative ideology newspapers. And since

[21] Any other kind of manipulation results in the paper bearing the costs of manipulation with no gain in recall.

$c()$ is symmetric, $s_- = -s_+$. If n_i are the news stories, the sum of the reported stories equals $\sum n_i$ since the number of positive and negative newspapers are equal.

Proof of Proposition 4. By the logic in Proposition 2, if news is small enough it is manipulated. Let x be the constant such that if $|n| < x$, then inconsistent news is biased towards priors.[22] Consider the first newspaper. If it receives news of size less than x, it always makes it consistent with priors.

Now consider the optimization problem of the second newspaper. It faces the same problem as the first newspaper except that the readers are even more convinced in their priors because in the first newspaper's consistent news. Consequently, it also manipulates news towards the reader's priors. In fact, the size of news for which the second newspaper still manipulates is even larger because of the reader's strengthened beliefs. This is the sense in which competition raises the incentive to spin.

Proceeding inductively, we see that each successive newspaper has an incentive to bias the news if it is small enough.

Proof of Proposition 5. This follows from the logic of Proposition 4. If the ideological paper reports first, the neutral paper has an incentive to spin toward the posteriors created by the ideological paper. If the neutral paper reports first, however, it only has an incentive to spin toward the priors. Consequently, beliefs are more likely to be biased by ideological paper if it reports first.

Proof of Proposition 6. If the signal is very negative, reader beliefs only get more negative because of the leak. Therefore, the source has no incentive to leak. If the signal is positive, by the logic in the proof of Proposition 4, the leak has a greater effect if released early. Later newspapers are more likely to spin their signals consistently with it.

Proof of Proposition 7. Consider the incentive of the any newspaper to spin a story. It faces an incentive to spin the story as well as incentive to bias for ideological reasons. The incentive to spin depends on the priors of the reader after having read all previous newspapers. Ideological bias, however, is independent of priors. Consequently, as β increases, the newspaper is less likely to spin, independent of what previous

[22]Such an x will always exist since $c'(x) \to 0$ as $x \to 0$ while the gain in being consistent is discrete.

newspapers have done.

Since half the newspapers are biased in one way and half are biased in the other, the biases induced by ideology cancel as in Proposition 3. Consequently, the total bias decreases.

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